

TWO NEW SPECIES OF WESTRINGIA (LABIATAE) FROM NEW SOUTH WALES

by

BARRY J. CONN*

ABSTRACT

Conn, B.J. Two new species of *Westringia* (Labiatae) from New South Wales. *Muelleria* 6(5): 321-328 (1987). — *Westringia davidii* and *W. saxatilis*, both from south-eastern New South Wales, are described for the first time.

INTRODUCTION

The two new species of *Westringia* which are described herein are rare and possibly vulnerable. At least one of them is not included in a conservation reserve. The publication of these species will enable them to be formally recognized by the management authorities concerned with these areas. It is hoped that this recognition will result in appropriate management procedures being implemented which will protect these rare species.

Terminology and presentation follows that used in Conn (1984, pp. 211-220).

TAXONOMY

Westringia davidii Conn, sp. nov.

Frutices 0.5-1 m. alti. *Rami* et *ramuli* subteretes, dense tomentosi. *Folia* verticillata terna, tomentosa usque glabrescentia; *petiolus* 1-2 mm. longus; *lamina* ovata usque obovata, 7-20 mm. longa, 5-8 mm. lata, basi cuneata, margine integro et recurvo, apice breviter mucronato. *Pedicellus floris* 1.3-2 mm. longus, dense tomentosus, *prophyllis* lineari-ovatis usque lineari-obovatis, 4-5.5 mm. longis, 0.3-0.5 mm. latis, dense tomentosus. *Calyx* ex parte viridis, lobi margine purpurpeo vel calyx ubique purpurascens, extra dense tomentosus; *tubus* 2-3.3 mm. longus, intra glaber; *lobi* anguste deltoidei, 2.5-4.8 mm. longi, 0.8-1 mm. lati, intra moderate usque dense tomentosi, apice angustato. *Corolla* 8-12 mm. longa, pallido-malvina, extra in partibus distalibus sparsim usque dense tomentosa, intra in partibus basaliter moderate tomentosa et in partibus distalibus sparsim tomentosa; *tubus* circa 8 mm. longus; *lobus abaxiali-medianus* spatulatus, 5.6-7 mm. longus, 7-8 mm. latus; *lobi laterales* oblongi usque subobovati, 4.8-6 mm. longi, 3.4-3.9 mm. lati; *par lorum adaxiali-medianum* latissime oblongum, 5.2-6 mm. longum, circa 6 mm. latum. *Androecium* ore corollae insertum; filamenta staminum 1.7-2 mm. longa; antherae 1-1.5 mm. longae; filamenta staminodiorum 2.9-3.3 mm. longa, tomentosa; lobi staminodiorum 0.6-1 mm. longi. *Pistillum* 7-8 mm. longum; ovarium circa 0.6 mm. longum; stylus circa 6-6.6 mm. longus, tomentosus; stigma usque ad circa 0.3 mm. longum. *Mericalpia* 1.8-2 mm. longa.

TYPE: *Albrecht 2413*, 21.i.1986, 1.7 km N. of the intersection of the Sugarloaf Fire Road and the Back Creek Fire Road, Nullica State Forest, New South Wales (Holo.: MEL 1546995; iso.: NSW).

Shrub, 0.5-2 m high. *Branches* subterete; internodes with raised ridges from axil of leaf to next more distal node, densely hairy [c. 150-200 hairs/mm²], hairs simple, ± straight, subpatent to subappressed, antrorse, 0.3-0.7 mm long, white. *Leaves* in whorls of 3, spreading, abaxial surface and petiole densely hairy [100-120 hairs/mm²] with ± patent, slightly tangled hairs, adaxial surface very sparsely hairy [up to c. 20 hairs/mm²], glabrescent distally; *petiole* 1-2 mm long; *lamina* ovate to obovate, 7-20 mm long, 5-8 mm wide [lamina length to width ratio 1.4-2.6, length of maximum width from base to total lamina length ratio 0.4-0.7], base cuneate, margin entire and recurved, apex shortly mucronate (mucro c. 0.3 mm

* National Herbarium of Victoria, Birdwood Avenue, South Yarra, Victoria, Australia 3141.

long); venation not visible, midrib raised on abaxial surface. *Inflorescence* a frondose racemiform conflourescence, uniflorescence monadic, up to c. 12-flowered [per conflourescence]. *Pedicel* 1.3-2 mm long, densely hairy [as for abaxial surface of leaves]; *prophylls* inserted at base of calyx, linear-ovate to linear-obovate, 4-5.5 mm long, 0.3-0.5 mm wide [length to width ratio 8.4-14, length of maximum width from base to total lamina length ratio 0.4-0.7], densely hairy, base narrowly cuneate or prophylls not constricted at base, margin incurved, apex tapering. *Calyx* green, often appearing whitish green because of the white indumentum, and lobes with purple margins or calyx purplish throughout; outer surface densely hairy [as for adaxial surface of leaves]; *tube* 2-3.3 mm long, inner surface glabrous; *lobes* narrowly triangular, 2.5-4.8 mm long, 0.8-1 mm wide [length to width ratio 1.2-1.5], inner surface moderately to densely hairy, apex tapering; [calyx lobes to tube ratio 1.2-1.5]. *Corolla* 8-12 mm long, pale mauve, with orange spots medially on abaxial surface of tube and mouth; outer surface glabrous basally, sparsely hairy on distal part of tube, densely hairy on lobes, hairs c. 0.2 mm long, \pm appressed; inner surface moderately hairy in tube, sparsely hairy on base of lobes, hairs 0.2-0.7 mm long, prostrate to suberect, straight to variously bent; *tube* c. 8 mm long, tubular, dilated in throat such that tube appears slightly funnelliform distally, diameter at mouth c. 5 mm; *abaxial median lobe* spatulate, 5.6-7 mm long, 7-8 mm wide distally, bilobed (sinus 0.9-3.3 mm long), each half of lobe-pair perdedpressed to depressed, ovate to obovate [lobe length to width ratio 0.3-0.6] and each with a \pm rounded and irregular apex; *lateral lobes* oblong to subobovate, 4.8-6 mm long, 3.4-3.9 mm wide [length to width ratio 1.3-1.7], apex rounded, slightly irregular, often slightly bilobed; *adaxial median lobe-pair* very broadly oblong, 5.2-6 mm long, c. 6 mm wide [length to width ratio 0.9-1], apex rounded to subtruncate, \pm irregular, bilobed (sinus 1.8-2.6 mm long). *Androecium* inserted in mouth of corolla. *Staminal filaments* 1.7-2 mm long, glabrous or with an occasional hair; anthers 1-1.5 mm long. *Staminodal filaments* 2.9-3.3 mm long, hairy; staminodal lobes white, 0.6-1 mm long. *Disc* cylindrical, c. 0.2-0.3 mm high. *Pistil* 7-8 mm long; ovary c. 0.6 mm long; style c. 6-6.6 mm long, hairy with antrorse hairs 0.2-0.3 mm long; stigma lobes up to c. 0.3 mm long. *Mericarps* c. 1.8-2 mm long, distally extended c. 0.5-1 mm beyond base of style; seeds slightly flattened, obovate in outline, c. 1.4 mm long. Fig. 1.

DISTRIBUTION:

Endemic to the South Coast region of New South Wales.

ECOLOGY:

Confined to rhyolite rocky outcrops (at altitudes of 170-500 m) on exposed sites in *Eucalyptus sieberi*-*E. agglomerata* woodland with *Casuarina littoralis*, *Pultenaea villifera*, *Leptospermum attenuatum*, *Patersonia glabrata* and *Xanthosia pilosa*, or in more sheltered sites in *Acacia subtilinervis*-*Melaleuca armillaris*-*Kunzea ambigua* dominated shrubland, with *Lepidosperma urophorum*, *Phebalium ralstonii*, *Platysace lanceolata* and *Hakea dactyloides*.

NOTES:

Although this species has close affinities with *W. fruticosa*, it can be readily distinguished from it. *W. davidii* has 3 leaves per whorl, pedicels that are 1.3-2 mm long, prophylls that are 4-5.5 mm long, calyx lobes longer than the calyx tube (length of calyx lobe to length of calyx tube ratio 1.2-1.5) and the indumentum is composed of subpatent to subappressed, antrorse hairs that are often slightly tangled. *W. fruticosa* has 4 or 5 leaves per whorl, pedicels that are about 0.5 mm long, prophylls (2-)2.4-3 mm long, calyx lobe less than or up to as long as the calyx tube (length of calyx lobe to length of calyx tube ratio 0.6-1) and the indumentum is composed of appressed, antrorse hairs. Each species occupies a distinct ecological niche. *W. fruticosa* is a coastal species which is usually confined

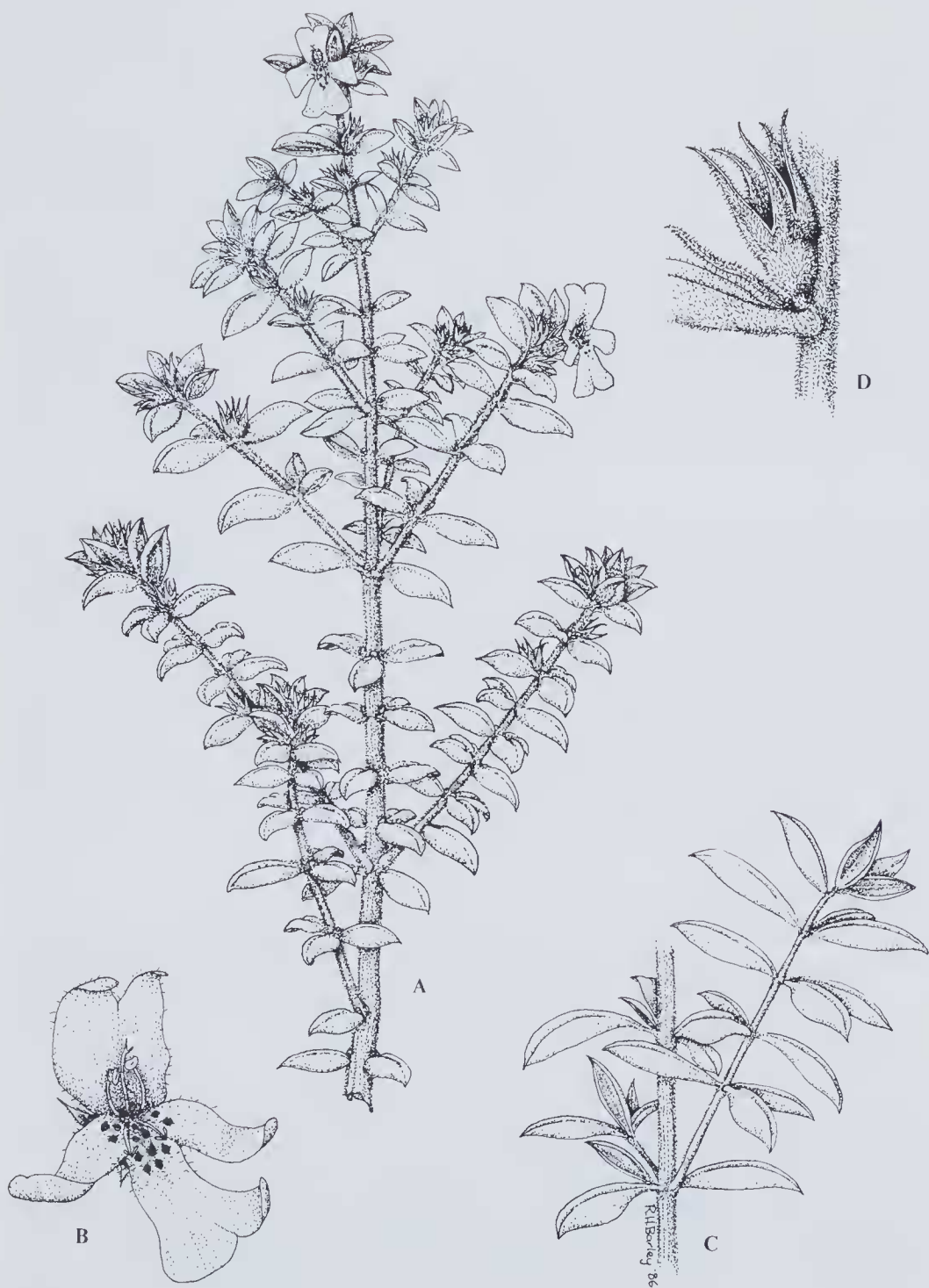


Fig. 1. *Westringia davidii*. a — twig and flowers, x 1. b — detail of flower, x 3. Both from Albrecht 2413. c — twig, x 1. From Albrecht 2302. d — detail of calyx, prophyll and indumentum, x 3. From Albrecht 2413.

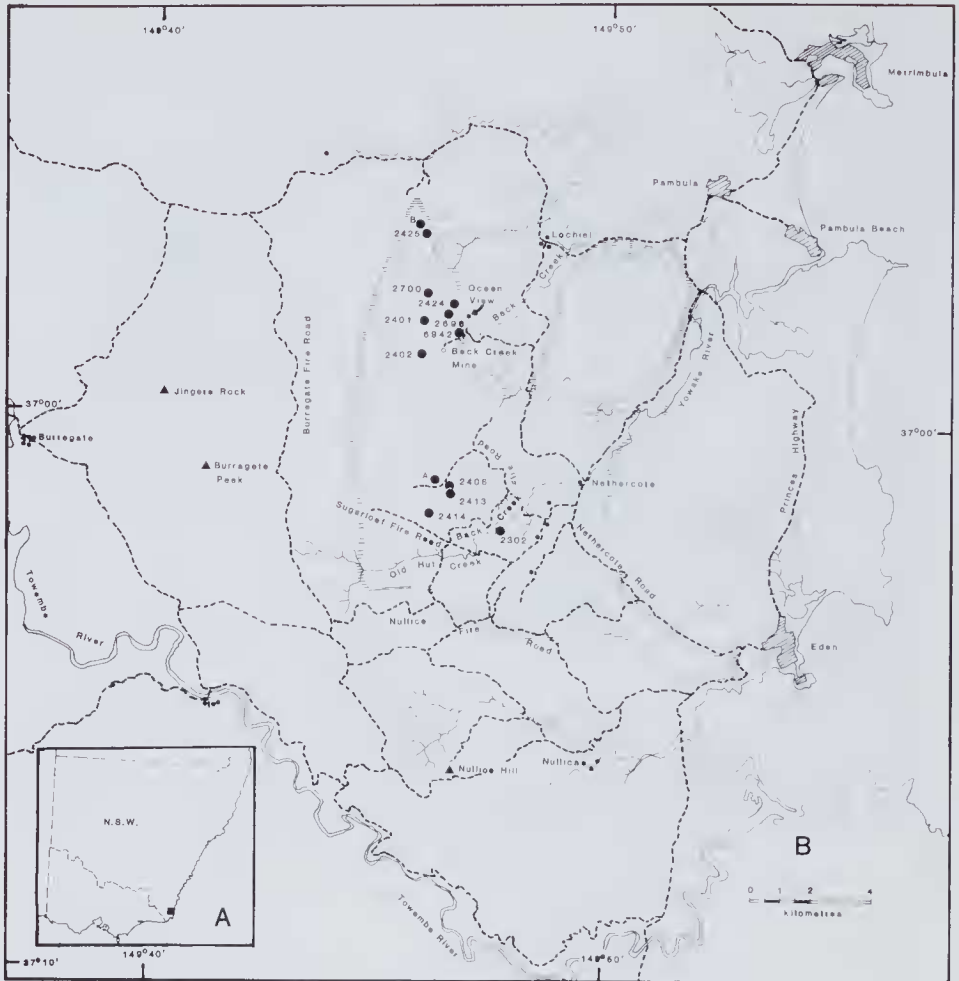


Fig. 2. Distribution map of *Westringia davidii*. a — insert map showing locality of area covered in Fig. 2b. b — detailed distribution map. Populations represented by large dots and each is numbered with an Albrecht collection number, except for populations 'A' and 'B' which are unvouchered sight records, and population 8942 which is a Parris collection number. Settlements are represented by small dots, major and minor roads by discontinuous lines, and the approximate boundary of the rhyolite is marked by horizontal lines.

to sedimentary-derived soils, at altitudes up to about 33 m, whereas *W. davidii* is confined to the rhyolite outcrops of the inland foothills at altitudes of 170 to 500 m.

Branches which develop in dense shade often have large leaves which are separated by long internodes (Fig. 1c). The branches of this species are frequently blackened by sooty moulds, which characteristically infect many species of *Westringia*. Dr B. Sutton (K) identified *Antennulariella* sp. and *Ophiocapnocoloma* sp. on the branches of the specimens collected by D. E. Albrecht (see below), whereas a specimen of *W. fruticosa* (Albrecht 2426, from the Ben Boyd National Park, New South Wales) was found to be infected by two species of sooty moulds (namely, *Antennatula* sp. and a member of the family Capnodiaceae), plus a Black Yeast (*Aureobasidium pullulans*).

This species has considerable horticultural potential and has readily established at MEL (*Parris 8951*) and CBG (*Parris 8927 & 8942*) from 'cutting' material.

CONSERVATION STATUS:

An occasional or locally common shrub which is apparently restricted to the rhyolite outcrops in the Nullica & Gnupa State Forests of New South Wales (Fig. 2) — Risk Code = 2V (Leigh *et al.* 1981). This species has been assigned this rating because it only occurs in a few specific sites, the populations are not included in a conservation reserve and present management practices, particularly the 'fuel-reduction' burning practices, make this a vulnerable species.

The distribution of the known populations is shown in figure 2b. Each population is numbered according to an *Albrecht* collection number, except for populations 'A' and 'B' which are unvouchered sight records (*Albrecht*, pers. comm.), and population 8942 which is a *Parris* collection number. The largest known population is 2700 with about 1000 plants. Although all of the other populations are much smaller than 2700, the species is relatively widespread and common in populations 2413, 2414, 2424 and 2696. Populations 2302, 2401, 2402, 2425 and 2657 are smaller than the previous populations, with fewer plants confined to very localized areas. Occasional plants are scattered throughout population 'A', whereas only one plant was observed in population 'B'.

OTHER SPECIMENS EXAMINED:

New South Wales: South Coast (Nullica & Gnupa State Forests) — *Albrecht 2302*, 14.xii.1985, 3.2 km SW. of the Old Hut Creek crossing of the Nethercote Road (A, CANB, KUN, MEL 1546997, NSW); *Albrecht 2401*, 20.i.1986, 4.8 km SW. of Lochiel (BRI, MEL 1547001, MO); *Albrecht 2402*, 20.i.1986, 5.5 km SW. of Lochiel and c. 1 km W. of Back Creek pyrophyllite mine (MEL 1457000); *Albrecht 2406*, 21.i.1986, 1.9 km N. of the intersection of the Sugarloaf Fire Road and the Back Creek Fire Road (MEL 1546998); *Albrecht 2414*, 22.i.1986, 1 km NNW. of the intersection of the Sugarloaf Fire Road and the Back Creek Fire Road (MEL 1546999); *Albrecht 2424*, 24.i.1986, 3.7 km SW. of Lochiel and c. 0.6 km NW. of "Ocean View" property (CANB, MEL 1547002); *Albrecht 2425*, 23.i.1986, 4 km W. of Lochiel (AD, MEL 1546996); *Albrecht 2657*, 14.vii.1986, 4 km W. of Lochiel (MEL 1549250) [same locality as *Albrecht 2425*]; *Albrecht 2696*, 20.vii.1986, northern end of spur 800 m directly NW. of "Ocean View" property (MEL 1549251); *Albrecht 2700*, 20.vii.1986, 1.5 km directly NW. of "Ocean View" property (MEL 1549252); *Parris 8927 (& Albrecht)*, 14.xii.1985, 13.1 km SW. of Pambula, above Old Hut Creek via Sugarloaf Fire Road (CBG 8505741) [same locality as *Albrecht 2302*]; *Parris 8942*, 11.i.1986, 6 km NW. of Nethercote and 9.25 km SW. of Pambula (CBG 8600430); *Parris 8951*, 22.ii.1986, c. 0.75 km NW. of "Ocean View" property (MEL 1547333) [same locality as *Albrecht 2424*].

ETYMOLOGY:

The specific epithet honours Mr David E. Albrecht of the National Herbarium of Victoria who discovered this species with M. Parris.

Westringia saxatilis Conn, sp. nov.

Frutices 0.5-1 m. alti. *Rami* et ramuli subteretes, dense tomentosi. *Folia* verticillata terna, dense tomentosa usque glabrescentia; *petiolus* 2-2.5 mm. longus; *lamina* anguste ovata usque anguste elliptica, 11-23 mm. longa, 3-7 mm. lata, basi cuneata usque subattenuata, margine integro et recurvo, apice acuto et brevissime mucronato. *Pedicellum floris* 0.8-1.5 mm. longus, dense tomentosus, *prophyllis* anguste oblongis vel anguste deltoideis usque linearibus, 1-1.5 mm. longis, 0.2-0.3 mm. latis, dense tomentosis. *Calyx* probabiliter viridis, extra dense tomentosus; *tubus* 3.5-5 mm. longus, intra glaber; *lobi* anguste deltoidei usque deltoidei, 3-4.5 mm. longi, 1.2-2 mm. lati, intra moderate usque dense tomentosi, apice angustato. *Corolla* 11-13 mm. longa, alba, extra in partibus moderate usque dense tomentosa, intra in partibus sparsim usque moderate tomentosa; *tubus* circa 6-8 mm. longus; *lobus abaxiali-mediano* spatulatus, 4.5-4.7 mm. longus, 5.3-5.7 mm. latus; *lobi laterales* oblongi usque subobovati, 3.2-4 mm. longi, 2.2-3.2 mm. lati; *par lorum adaxiali-mediano* usque late oblongum usque subquadratum, 5.2-5.7 mm. longum, 5.3-6.2 mm. latum. *Androecium* ore corollae insertum; filamenta staminum 1.5-2 mm. longa; antherae 1-1.5 mm. longae; filamenta staminodiorum 1.5-2.7 mm. longa, tomentosa; lobi staminodiorum 0.6-1.3 mm. longi. *Pistillum* 7.5-8 mm. longum; ovarium circa 1 mm. longum; stylus circa 6.5-7 mm. longus, tomentosus; stigma usque ad circa 0.5 mm. longum. *Mericarpi* probabiliter immatura, circa 1.5 mm. longa.

TYPE: *Gilmour 5331*, 25.xi.1985, c. 2 km N. of Coondella Trig, Deua National Park, New South Wales (Holo.: MEL 1547004; iso.: CBG 8505381, NSW).

Shrub, 0.5-1 m high. *Branches* subterete; internodes with raised ridges from axil of leaf to next more distal node, densely hairy [c. 83-267 hairs/mm²], hairs simple, ± straight, appressed to subappressed, mostly antrorse, 0.2-0.4 mm long, white. *Leaves* in whorls of 3-5, spreading, abaxial surface and petiole densely hairy [83- c. 250 hairs/mm²] with ± subappressed, antrorse to retrorse, slightly tangled hairs, adaxial surface with an occasional hair or sparsely to moderately hairy [up to c. 12-68 hairs/mm²], glabrescent distally; *petiole* 2-2.5 mm long; *lamina* narrow, ovate to elliptic, 11-23 mm long, 3.7 mm wide [lamina length to width ratio 2.4-4.2, length of maximum width from base to total lamina length ratio 0.4-0.6], base cuneate to subattenuate, margin entire and recurved, apex acute and very shortly mucronate (mucro c. 0.1 mm long); venation not visible, midrib raised on abaxial surface and less hairy than abaxial surface. *Inflorescence* a frondose racemiform conflourescence, uniflorescence monadic, up to c. 6-12-flowered [per conflourescence]. *Pedicel* 0.8-1.5 mm long, densely hairy [as for abaxial surface of leaves]; *prophylls* inserted at base of calyx, narrowly oblong or narrowly triangular to linear, 1-1.5 mm long, 0.2-0.3 mm wide [length to width ratio 3.3-7.5, length of maximum width from base to total lamina length ratio 0], densely hairy, prophylls not constricted at base, margin incurved, apex tapering. *Calyx* ? green; outer surface densely hairy [as for adaxial surface of leaves]; *tube* 3.5-5 mm long, inner surface glabrous; *lobes* narrowly triangular to triangular, 3-4.5 mm long, 1.2-2 mm wide [length to width ratio 1.5-3], inner surface moderately to densely hairy, apex tapering; [calyx lobes to tube ratio 0.7-1]. *Corolla* 11-13 mm long, white, with yellowish (*Binns s.n.* MEL 670211) [probably brownish orange] spots medially on abaxial surface of tube and mouth; outer surface glabrous basally, sparsely to densely hairy on distal part of tube, densely hairy on lobes, hairs 0.1-0.4 mm long, ± appressed; inner surface glabrous in tube, glabrous or sparsely to moderately hairy on base of lobes, hairs 0.2-1 mm long, prostrate to suberect, straight to variously bent, slightly flattened; *tube* c. 6-8 mm long, tubular, dilated in throat such that tube appears slightly funnellform distally, diameter at mouth c. 4-5 mm; *abaxial median lobe* spatulate, 4.5-5.7 mm long, 5.3-5.7 mm wide distally, bilobed (sinus up to c. 1 mm long), each half of lobe-pair perdepresed to very broadly ovate [lobe length to width ratio 0.4-0.8] and each with a ± rounded and irregular apex; *lateral lobes* oblong to subobovate, 3.2-4 mm long, 2.2-3.2 mm wide [length to width ratio 1-1.6], apex rounded, slightly irregular, often slightly bilobed; *adaxial median lobe-pair* transversely broad-oblong to almost square, 5.2-5.7 mm long, 5.3-6.2 mm wide [length to width ratio 0.8-1], apex rounded to subtruncate, ± irregular, bilobed (sinus 1.6-2.6 mm long). *Androecium* inserted in mouth of corolla. *Staminal filaments* 1.5-2 mm long, glabrous or with an occasional hair; anthers 1-1.5 mm long. *Staminodal filaments* 1.5-2.7 mm long, hairy; staminodal lobes white, 0.6-1.3 mm long. *Disc* cylindrical, c. 0.2-0.3 mm high. *Pistil* 7.5-8 mm long; ovary c. 1 mm long; style c. 6.5-7 mm long, hairy with antrorse hairs 0.2-0.3 mm long; stigma lobes up to c. 0.5 mm long. *Mericarps* ? immature, c. 1.5 mm long, distally extended c. 0.8 mm beyond base of style; seeds ? immature, slightly flattened, obovate in outline, c. 1 mm long. Fig. 3.

DISTRIBUTION:

Endemic to the Deua National Park, in the South Coast region of New South Wales.

ECOLOGY:

Confined to steep rhyolite rocky outcrops (at altitudes of 450-540 m) in skeletal soils of *Eucalyptus stenostoma*-*Hakea macraeana* shrubland-open forest, with *Hakea dactyloides*, *Casuarina littoralis*, *Eriostemon trachyphyllus*, *Prostanthera porcata*, *Leucopogon setiger* and *Leptospermum* sp. nov.



Fig. 3. *Westringia saxatilis*. a — twig and flowers, x 1. b — detail of indumentum, x 3. c — detail of calyx and prophylls, x 3. All from Gilmour 5331.

NOTES:

This species has its closest affinities with *W. fruticosa*. *W. saxatilis* has pedicels that are 0.8-1.5 mm long (about 0.5 mm long in *W. fruticosa*) and prophylls that are 1-1.5 mm long and 0.2-0.3 mm wide (usually 2.4-3 mm long and 0.3-0.5 mm wide in *W. fruticosa*). *W. saxatilis* is restricted to the rhyolite outcrops of the inland foothills regions of New South Wales (at altitudes of 450-540 m), whereas the more widespread *W. fruticosa* is confined to the coast (at altitudes up to c. 33 m).

CONSERVATION STATUS:

An occasional or locally common shrub which is restricted to the rhyolite outcrops in the Deua National Park — Risk Code = 2R (Leigh *et al.* 1981).

OTHER SPECIMENS EXAMINED:

New South Wales: South Coast (Deua National Park) — Beesley (& Binns) 368, 28.iii.1985, ridge 1.8 km NE. of summit of Mt Donovan (AD, CBG 8502583, MEL 1549253, NSW); Binns *s.n.*, 27.iii.1985, Mt Donovan (MEL 670211); Gilmour 4310, 15.ii.1984, c. 2 km N. of Coondella Trig (CBG 8413618); Gilmour 5330, 25.xi.1985, c. 2 km N. of Coondella Trig (CBG 8505380, MEL 1547005, NSW).

ACKNOWLEDGEMENTS

I wish to thank D. E. Albrecht (MEL) and P. Gilmour (National Parks and Wildlife Service, Queanbeyan) for drawing my attention to these two new species and for providing ecological information. M. Parris (Merimbula) kindly provided cutting material of *W. davidii* for cultivation at MEL. The plant illustrations were skilfully done by R.H. Barley (MEL).

REFERENCES

- Conn, B. J. (1984). A taxonomic revision of *Prostanthera* Labill. section *Klanderia* (F.v. Muell.) Benth. (Labiatae). *J. Adelaide Bot. Gard.* 6: 207-348.
 Leigh, J. *et al.* (1981). "Rare or Threatened Australian plants". Austral. Natl Parks & Wildlife Serv. Special Publ. 7. (Commonwealth of Australia: [Canberra]).

Manuscript received 1 July 1986.